

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference OTE-031088	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, Item 5 below.	
International application No. PCT/US2007/078436	International filing date (day/month/year) 13/09/2007	(Earliest) Priority Date (day/month/year) 13/09/2006
Applicant CAMERON INTERNATIONAL CORPORATION		

This International search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International search report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the **language**, the International search was carried out on the basis of:

- ☒ the International application in the language in which it was filed
☐ a translation of the International application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

b. ☐ This International search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6b/s(a)).

c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the International application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box No. II)

3. ☐ **Unity of invention is lacking** (see Box No. III)

4. With regard to the **title**,

- ☒ the text is approved as submitted by the applicant
☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

- ☒ the text is approved as submitted by the applicant
☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority

6. With regard to the **drawings**,

- a. the figure of the **drawings** to be published with the abstract is Figure No. 5
☒ as suggested by the applicant
☐ as selected by this Authority, because the applicant failed to suggest a figure
☐ as selected by this Authority, because this figure better characterizes the invention
b. ☐ none of the figures is to be published with the abstract

INTERNATIONAL SEARCH REPORT

national location No
PCT/US2007/078436

A. CLASSIFICATION OF SUBJECT MATTER
INV. E21B17/20 E21B33/068

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
E21B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2004/154790 A1 (CORNELSSEN MICHAEL JAMES [CA] ET AL) 12 August 2004 (2004-08-12)	1, 9, 10, 12-14, 16-19, 24
Y	paragraphs [0003], [0005]; figure 3	2-8, 15, 20-23, 25
X	WO 2005/047646 A (ENHANCED RECOVERY LTD DES [GB]; DONALD IAN [GB]; REID JOHN [GB]) 26 May 2005 (2005-05-26)	9
Y	figures 20, 35	2-8, 15, 20-23, 25

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- *&* document member of the same patent family

Date of the actual completion of the international search

5 August 2008

Date of mailing of the international search report

12/08/2008

Name and mailing address of the ISA/

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Bellingacci, F

INTERNATIONAL SEARCH REPORT

Information on patent family members

International

Application No

PCT/US2007/078436

Patent document
cited in search report

Publication
date

Patent family
member(s)

Publication
date

US 2004154790 A1	12-08-2004	CA 2454857 A1	07-08-2004
WO 2005047646 A	26-05-2005	AU 2004289864 A1	26-05-2005
		CA 2526714 A1	26-05-2005

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/US2007/078436

International filing date (day/month/year)
13.09.2007

Priority date (day/month/year)

International Patent Classification (IPC) or both national classification and IPC
INV. E21B17/20 E21B33/068

Applicant
CAMERON INTERNATIONAL CORPORATION

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☒ Box No. VI Certain documents cited
- ☒ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



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Date of completion of
this opinion

see form
PCT/ISA/210

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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/US2007/078436

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of:
 - ☒ the international application in the language in which it was filed
 - ☐ a translation of the international application into , which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1 (b)).
2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43bis:1(a))
3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ on paper
 - ☐ in electronic form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in electronic form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
4. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/US2007/078436

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	<u>2-8,11,15,20-23,25</u>
	No: Claims	<u>1,9,10,12-14,16-19,24</u>
Inventive step (IS)	Yes: Claims	
	No: Claims	<u>1-25</u>
Industrial applicability (IA)	Yes: Claims	<u>1-15</u>
	No: Claims	

2. Citations and explanations

see separate sheet

Box No. VI Certain documents cited

1. Certain published documents (Rules 43*bis*.1 and 70.10)

and /or

2. Non-written disclosures (Rules 43*bis*.1 and 70.9)

see form 210

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Reference is made to the following documents:

D1 = US 2004/154790 A

D2 = WO 2005/047646 A

Re Item V

**Reasoned statement with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

V-1 The subject-matter of claim 1 is unclear, see following point VIII-1. As far as that subject-matter can be understood the closest prior art is D1, which discloses a mineral extraction system, comprising:

- a branch (fig. 3) having a branch passage (76);
- a diverter (18) coupled to the branch passage; and
- a capillary injection conduit (30) disposed inside to the branch passage.

The subject-matter of claim 1 is therefore not new and the claim does not meet the corresponding requirement of Art 33 PCT.

V-2 The features of dependant claims 2-8 appears to be new, but are made obvious by the combination of D1 with D2, fig. 20. A more detailed examination of the claim is not however possible as it would imply too many arbitrary assumptions and restrictions on the scope of claim 1.

V-3 Second independent claim 9 does not meet the conciseness requirement of Art. 6 PCT (see following point VIII-2). Anyhow, the prior art closest to its subject-matter is D1, which discloses a chemical capillary injector (see last line of par. 0003 and par. 0005, fifth line from the end), comprising a chemical injection capillary conduit (30) configured to mount inside a production passage (fig. 3), wherein the chemical injection capillary conduit comprises an inlet (at ref. sign 30 in fig. 3) and an outlet configured to terminate proximate a well formation (necessary so, given that the expression "well formation" is no better defined).

The subject-matter of claim 9 is therefore not new.

For completeness it is added that the subject-matter of claim 9 is new in against fig.

35 of D2 only in that D2 does not specify that the coiled tubing is a "capillary" conduit. As a "capillary conduit" is, in the contest of the present application, nothing else than a coil tubing of reduced diameter, the skilled man would find obvious to use the arrangement of fig. 35 also for capillary conduits, whereby the subject-matter of claim 9 does not involve an inventive step against D2.

V-4 The subject-matter of claims 10 and 12-14 is also known from D1, fig. 3 (and D2, fig. 35), and the subject-matter of the remaining dependant claims 11 and 15 appears to amount to obvious arrangements.

V-5 The objections raised to claims 1-15 apply also to the further independent claims 16, 23, 24 and related dependant claims, whereby it results that the subject-matter of claims 16-19 and 24 is not new against D1, while the subject-matter of claims 20-23 and 25 is new but it does not involve an inventive step.

Re Item VII

Certain defects in the international application

- VII-1 The independent claims are not properly cast in the two part form, with those features which in combination are part of the prior art being placed in the preamble, contrary to the requirements of Rule 6.3(b) PCT.
- VII-2 The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).
- VII-3 Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in D1 and D2 is not mentioned in the description, nor are said documents identified therein.

Re Item VIII

Certain observations on the international application

- VIII-1 It is believed that claim 1 is directed to the embodiment of fig. 5 of the present application, as it is the only embodiment which discloses a capillary conduit located in a "branch". That embodiment however relates to a specific type of diverter which is located partially inside the chock body of a tree of a well. Claim 1 however neither specifies the location of the diverter nor its type: as a "mineral extraction system"

includes entities as a complete mine, the unqualified term "branch" does not imply the presence of a tree (or of any other oil field equipment) and a "diverter", even in the context of the application, includes anything ranging from a valve to a plug or to a bypass conduit, is it apparent that the subject-matter of claim 1 is not supported by the description and it is unclear. The same conclusion applies also to claim 23.

VIII-2 To satisfy the conciseness requirement of Art. 6 PCT the set of claims should include only the minimum necessary number of independent claims in any one category. Said requirement is not satisfied by claims 1, 9, 16, 23 and 24, as in the present case it is considered appropriate to use only one independent claim in any category.

VIII-3 Claim 4 is formulated as dependant on claim 3 which on its turn is formulated as dependant on claim 1. Claim 4 however relates to "the inner conduit" which is defined only in claim 2. Claim 4 should have been formulated as dependant, directly or indirectly, on claim 2.